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Population-based public health nursing practice (intervention wheel) and instances from Turkey

Adem Sürmén¹, Selma Öncel²

ÖZET
Müdahale Çarkı fikri ilk olarak, 1998’dede Keller, Strathscine, Lia-Hoaberg ve Schaffer tarafından ortaya atılmıştır. Müdahale Çarkı, toplum/nüfus tabanlı, uygulamaya dayalı ve kanıt temelli bir uygulama modelidir. Müdahale Çarkı tüm toplumlar üzerine odaklanır, toplum değerlendirme temelli, sağlık belirleyicilerini dikkate alır, önlenmeye vurgular ve coğu seviyelerde müdahale eder. Model uygulanmanın iç seviyesini kapsar ve 17 halk sağlığı müdahalelerini belirler. Müdahaleler sağlık durumlarının geliştirilmesi veya korunması için toplumlar, sistemler, bireylere ve ailelere adımlar atlar. Birleşik(Eile) odaklı; bireylerin ve hane halkının bilgi, tutum, inanç, uygulamalar ve davranışları; Topluluk odaklı; normlar, tutumlar, farklılıkları, uygulamalar ve davranışları; Sistemler odaklı ise; politikalara, yasaları ve güç yaplarını değiştirir. 17 halk sağlığı müdahaleleri ise; Şurveys; Hastalık ve Diğer Sağlık Olaylarının İncelenmesi; Dışişleri ve Diğer Sağlık Olaylarının İncelenmesi; Sosyal Yardım; Tarama, Vaka Bulma; Sosyal Yardım; Vaka Yönetimi; İşletmelerin Devedirilmiş/Yerli Deve; Sağlık Eğitim; Danışmanlık; Konsültasyon; İşbirliği; Koalisyon Oluşturma; Toplum Güçlenmesi; Savunuculuk; Sosyal Fazla; Politika Geliştirilmesi ve Politikanın Uygulanmasıdır. Müdahale Çarkı, yinelemeli sağlık müdahaleinin ileri sürülebilmesi ve halkın sağlık hizmetlerine daha verimli bir yaklaşım yapma kolaylığını sağlar. Müdahale Çarkı, toplum/nüfus tabanlı, uygulamaya dayalı ve kanıt temelli bir uygulama modelidir.

ABSTRACT
The idea of Intervention Wheel is originally proposed by Keller, Strathscine, Lia-Hoaberg, and Schaffer in 1998. The Intervention Wheel is a population-based practice model which is evidence-supported. It focuses on entire populations, grounded in community assessment, considers determinants of health, emphasizes prevention, and intervenes at multiple levels. The model includes three levels of practice and identifies 17 public health interventions. Interventions are the steps taken on behalf of the communities, systems, individuals or families for improvement or protection of health conditions. Individuals/family focus modified the knowledge, attitudes, beliefs, practices and behaviors of the individuals and family members, Community Focus modifies norms, attitudes, awareness, practices and behaviors, Systems Focus modifies policies, laws and power structures. 17 Public Health Interventions are: Surveillance, Investigation of Diseases and Other Health Events; Outreach, Screening, Case Finding, Referral and follow-up; Case Management, Delegated Functions, Health teaching, Counseling, Consultation, Collaboration, Coalition building, Community Organizing, Advocacy, Social Marketing, Policy Development and Policy enforcement. The Intervention Wheel is a simple and comprehensive model for directing the health improvement practices and practices of the public health nursing. Because of the structural transformation in the healthcare system in Turkey since 2004, utilization of the intervention wheel in public health education and practice fields will be useful for evaluating data and developing new and measurable common strategies.

INTRODUCTION
Intervention Wheel (IW) is a graphic drawing developed for population-based public health practice. This wheel demonstrates how public health improves through the interventions performed on communities, individuals/families that constitute communities, and systems that affect the community health. The idea of IW is originally proposed by Keller, Strathscine, Lia-Hoaberg, and Schaffer (1998) (1). Public health nurses generally use IW in practice, training, and management in the United States of America (USA). Public health nurses primarily started to use IW as a tool in order to clarify the scope and extent of their own practices and set their targets; later on, nursing schools have included this wheel in curriculum of public health nursing. The use of IW has rendered the practices of public health nurses more visible in the eyes of the public, and reinforced nurses in this aspect (2). The first information regarding the formation of IW was published in Public Health Interventions; Applications for Public Health Nursing Practice booklet. This booklet includes explanations for each of the 17 interventions. This booklet includes the definition of intervention, practice examples related to interventions...
in three levels, correlations between an intervention and other interventions, primary steps (how to perform this intervention), best practices (how to perform this intervention perfectly), most valid evidences (citations/abstracts related to articles and texts reviewed by the experts’ committee) (3). Then, IW has been introduced in Ireland to increase the visibility of public health nursing practices and evidence level (4) and the results related to the validity of the wheel have been published (5).

This study has presented examples for IW formed in relation to the studies based on evidences as a result of population-based practices and for the related practices performed in Turkey. This study is important to form a basis in terms of effective public health nursing practices and to demonstrate the research and practice-based evidences required to be used.

Contents and Qualification of the Intervention Wheel

IW is predicated on population-based practices and it is a comprehensive circular graphic (Figure 1). The wheel has three main focus points from the centre to the outside, namely individual/household, community, and systems. The wheel is practice-based on these three levels. There are 17 intervention areas forming the IW and surrounding the wheel. Those that are interrelated among these areas have been joined and collected within 5 groups (2). These are:

1. Surveillance, investigation of diseases and other health events, outreach, screening and case finding,
2. Referral and follow-up, case management and delegated functions,
3. Health teaching, counselling and consultation,
4. Collaboration, coalition building and community organising,
5. Advocacy, social marketing and policy development and enforcement.

Public health nurses apply almost all of these interventions at all three levels. Case finding is only within the focus of individual/household; and since it could be performed in each of the areas of surveillance, investigation of diseases and other health events, outreach and screening, it is located in the centre where these four areas intersect instead of the outside of the wheel. Coalition building and community organising are also present within the focus of community and system, and since no intervention can be performed in the individual/household focus, the point where these two areas intersect with individual/household focus is coloured as black (Figure 1) (6).


IW has three significant qualities. The first quality is that it is “population-based”. Population-based intervention is a professional activity that covers the assessment, political planning and improvement of public health (7). According to Keller et al., (2002), population-based practice focuses on all populations and is based on population assessment. It takes into account all health determinants, emphasises prevention and intervenes at multi-levels (8). It has been reported that population-based practice should be regulated to meet the current and future needs in health systems (9). Population-based practice intended for individuals and families are practices intended for individuals by themselves or as a member of the family. These practices aim to change individuals’ knowledge, attitudes, beliefs, skills, and behaviours in families. In cases in which a certain public health problem is approached or the promotion of the population’s general health condition is directly contributed; practices with individuals and families are considered population-based as individuals and families are members of a population. Population-based practice intended for communities includes the whole community or diverse groups in the community. Practice with communities ensures the promotion of the public health by changing the community’s norms, attitudes, awareness, and behaviours. Population-based practice intended for systems is aimed at the systems affecting health (for instance; health, socio-economic, legal, political, educational, religious/belief community-related, commercial and environmental systems). Practice with systems, which affect the health of populations, changes institutions, policies, laws, and
structures (7). Population-based practices have started to come into prominence for the promotion of public health. An effective public health employee evaluates the population's health condition, determines health priorities, plans and applies effective interventions, and reveals the differences between public health programs (8). The public health performs this to raise healthy populations in collaboration with other disciplines (employees of education, pharmaceutics, nursing social services, etc.) in order to solve disease and safety-related problems that negatively affect the population (10).

The second quality of IW is that it is “practice-based”. Public health nurses have defined their traditional practices based on their workplaces and positions (school nurse, clinic nurse, workplace nurse, etc.) (1). This reveals two main concepts that are underlying of IW:

a) Practices of Public Health Nurses (PHN) are similar regardless of their practice areas.

b) Practices of PHN are very extensive including practices conducted with communities, systems and individuals/households.

Therefore, common tasks of public health nursing work area have been determined (2). The third quality of IW is that it is “evidence-based”. It has been argued in the last 20 years in public health and other health-related fields in which evidence-based practices are necessary (2,11). The increase in the amount and rate of the produced information, reliability, accessibility, and easy-to-use of information resources, their difference in terms of being up-to-date, and the importance gained by the concepts of cost, efficiency and quality in studies particularly health sciences have also made evidence-based practices essential and significant (12,13).

Intervention Wheel’s Places of Use and Examples
Public health employees use IW in all areas. Examples selected in relation to the innovations in practice, teaching and management guide the effective approaches to promote the health of populations. Development continues to document and assess the practices and is used to clarify the PHN interventions performed with communities, systems, and individuals/households. IW is used in nursing undergraduate and graduate educational institutions in the USA for teaching PHN and in its clinical evaluations (6). PHN and other public health teams such as dieticians, doctors, health educators and epidemiologists are also advised to use IW in their practices (14). IW is also used to structure job descriptions, train staff, plan and assess other matters related to programs, documents and reports, budget and health management (6).

IW has been started to be also used in studies and researches. In their study Depke and Onitilo (2011) specified that coalition-building among the IW’s 17 interventions is important in terms of reducing obstacles and empowering trainings for raising awareness through the development of breast cancer screening programs among the women living in Hmong in Southeast Asia and creating health trainings (15). “Public Health Nursing Competences Tool/Criteria” has been developed in line with IW for the population-based public health nursing. This tool/these criteria includes personnel orientation, development and guidance according to their assessment; structuring of personnel and student self-assessment; guidance of labour force and organisational development; developing and revising job definitions; developing PHN curriculum and forming a basis for student evaluation; informing people on the contents of PHN practice; and researches on PHN teaching and practices, and consists of 195 measurable activities (16).

EXPLAINING THE INTERVENTION WHEEL WITH AN EXAMPLE
IW, used by public health nurses to promote public health, focuses on the assessment of public health in the selection of interventions, interferes on more than one level based on the prevention of diseases and development of health, and is effective on all population. For instance, if the increasing smoking rates of adolescents is considered as a public health problem; the following should be performed by the public health nurses (17-22):

- In the individual/household focus; children and adolescents should be taken to training programs related to the effects of smoking on health. Programs intended for adolescents and developing life skills should be prepared for preventing them from starting to smoke. These programs should include training on subjects such as “being able to say no, withstanding persistence, coping with stress, anger management, communication and problem-solving”.

- In the community focus; norms should be created, social campaigns should be organised and coordinated regarding the smoking habits of children, adolescents and adults. Health educators should provide trainings in classrooms; it should be aimed to increase the knowledge levels on the risks of smoking, change attitudes towards smoking, and improve adolescents’ “ability to refuse”.

- In the focus of systems; it should be prohibited to smoke in closed areas at the political level, collaborations should be established with municipalities and smoking areas should be inspected.

Practices performed in Turkey and IW’s 17 are given in Table 1 with examples.
Table 1. Some Practices Performed in Turkey as Examples of 17 Intervention Areas Creating the Intervention Wheel.

<table>
<thead>
<tr>
<th>Intervention Areas</th>
<th>Examples</th>
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</thead>
<tbody>
<tr>
<td>1. Surveillance</td>
<td>In case of a pregnancy-related death at the Family Health Centre, the nurse/doctor who follows up pregnant and postpartum women ascertains the death of the mother and infant, reports it according the states of delay/ reasons and informs the Provincial Public Health Directorate.</td>
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<td>2. Disease and other health</td>
<td>Investigating the disorder that caused repetitive high fever, white mouth sore, dry cough, skin redness and eruption symptoms observed on a six year-old child admitted to the Family Health Centre for examination and getting in contact with other family members.</td>
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<tr>
<td>event investigation</td>
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<tr>
<td>3. Outreach</td>
<td>Getting in touch with a 16 year-old substance abuser from a poor family and his family and ensuring his treatment at the Alcohol and Substance Addiction Treatment Centre located in the nearest residential area.</td>
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<td>4. Screening</td>
<td>Following the growth and development of infants and children performed by nurses at the Family Health Centre, frequent follow-up and referral in case of abnormality.</td>
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<td>5. Case-finding</td>
<td>The nurse works with a family with an 8 month-old child having delay and disorder in some developmental areas, screening is performed with Denver II Developmental Screening Test and the case is identified. The test is repeated a month later and renewed once a year.</td>
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<td>6. Referral &amp; follow-up</td>
<td>Informing those with high-risk pregnancies at Family Health Centres regarding the further examinations and treatment centres, receiving expert opinion and contribution, referring by filling in the &quot;High-Risk Pregnancy Follow-up and Referral Form&quot; in order to ensure coordination between healthcare service providers to make decision regarding the frequency of follow-ups, and where and how the follow-ups are to be performed.</td>
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<td>7. Case management</td>
<td>Psychosocial support services, providing follow-up and treatments at the centre or in their own environments if deemed necessary. With the method of &quot;Directly Observed Treatment Administered by the Family Members at Home&quot; used for guaranteeing the patients, who do not come to the hospitals, tuberculosis dispensaries or family health centers in order to continuously and regularly take their drugs every day for effective treatment of tuberculosis disease, to take their drugs; providing administration of the required drugs to the patient by a trained family member since the nurses are unable to visit their patients at home every day, and following up of the specified family member by the nurse once a month to register and monitor on whether this family member administer drugs to the patient at the right time and right dosage.</td>
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<td>8. Delegated Functions</td>
<td>Training s to be provided by Public Health Nurses in public places such as public education centres, schools, Quran courses, coffee houses, mosques, military units, etc. regarding healthy nutrition, sanitation, personal hygiene, self-care needs, reproduction health, etc.</td>
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<tr>
<td>9. Health Teaching</td>
<td>Gaining the skills of healthy lifestyles, disease management, self-management which is important in struggling with cardiovascular diseases, cancers, diabetes, chronic respiratory tract diseases which are on the rise in Turkey and providing consultation with regard to weight control in Healthy Nutrition and Obesity Counselling Units affiliated with Community Health Centres.</td>
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<tr>
<td>10. Counselling</td>
<td>Creating support groups for enabling patients followed up by Home Care Centres to cope with situations such as being confined to bed, depression and loss, and requesting consultation from relevant units.</td>
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<td>11. Consultation</td>
<td>Various professionals (speaking therapists and physical therapists, health educators, doctors, social workers, etc.) come together for facilitating the access to the services in line with the needs of the patients that are given care by Home Care Centres, produce solutions that make patients’ lives easier and perform related practices.</td>
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<td>12. Collaboration</td>
<td>Raising awareness at schools concerning healthy nutrition and an active lifestyle and supporting good practices performed on these matters, and gathering the Ministry of Health, the Ministry of National Education, the Ministry of Food, Agriculture and Livestock, and non-governmental organisations together improve health school.</td>
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<tr>
<td>13. Coalition building</td>
<td>Warning employees, customers, visitors, members and passengers (and all public transportation drivers including taxi drivers) not to smoke tobacco products within buildings and in vehicles in accordance with the laws, warning hanging signs and performing periodical inspections.</td>
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<tr>
<td>14. Community organising</td>
<td>Healthcare employees should advocate that the developmental screenings and vaccinations of children of the refugees coming into the country should be performed, and relief organisations take action on this matter.</td>
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<td>15. Advocacy</td>
<td>Demonstrating public service ads on many channels of visual media regarding the detrimental effects of smoking in order to raise awareness among the public, hanging banners on billboards on municipality buses and roads, handing out brochures in front of big shopping centres.</td>
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<td>16. Social marketing</td>
<td>Preventing the sales of beverages with high energy density and low nutritional values except for natural spring waters, fried food and crisps at canteens, tea shops, buffets, etc. of educational institutions including boarding school and guesthouse dining halls since they could lead to malnutrition among children. Having milk, buttermilk drink, yogurt, fresh-squeezed fruit juice and fruits instead of them as per the permission of the Ministry of Agriculture and Rural Affairs.</td>
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<td>17. Policy development and</td>
<td></td>
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<td>enforcement</td>
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CONCLUSION

This study shows that IW can be used in public health nursing practices and research as population, practice and evidence-based by healthcare staff and can become widespread throughout the country. IW is important since it provides a common language for defining, organising, clarifying and documenting the practices of public health nurses, and it can be adapted by considering each country's own priorities and health problems. This wheel can be used by nurses, practitioners, educators, administrators, and students working in Public Health Institution of Turkey and nursing schools. The use of IW is thought to be useful in order to evaluate the current data and develop new, measurable and common strategies due to the positive/negative developments in the health system of Turkey since the year 2004. The use of IW may be effective to define the practices of the personnel working at branches of Provincial Public Health Directorate affiliated with Public Health Institution of Turkey and the healthcare staff of this directorate's affiliated units (Community Health Centre, Community Mental Health Centre, Family Health Centres, Home Care Centre, Cancer Early Diagnosis and Training Centre, etc.), evaluate their sufficiency, make their job definition, and to eliminate the deficiencies of their in-service trainings.

Population-based practices have been conducted for a long time in Turkey. The real problem here is experienced in the evaluation of practices and ensuring developments. It can be asserted that there are deficiencies in arranging the evaluations and sufficiency criteria of the conducted practices. Unfortunately, there are no policies in Turkey that are related to the periodical evaluation of the personnel working at branches of Provincial Public Health Directorate affiliated with Public Health Institution of Turkey and the personnel working in other countries. The Intervention Wheel could be used in Turkey as a comprehensive and extensive practice model for the evaluation of public health capacities in order to promote health of populations.

REFERENCES